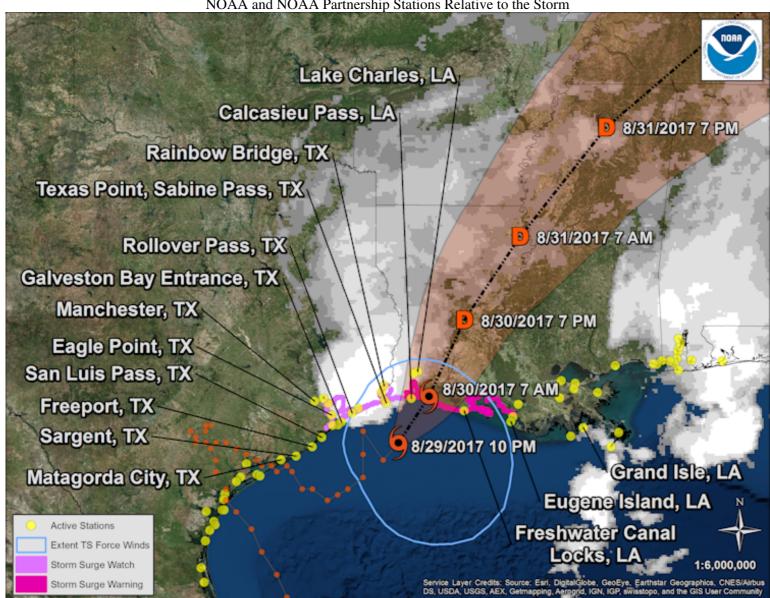




Tropical Storm HARVEY QuickLook Posted: 23:00 CDT 08/29/2017

NOAA and NOAA Partnership Stations Relative to the Storm



Storm Analysis

As of 8/29/2017 2300 CDT, water levels within upper Galveston Bay and the Galveston Intracoastal Waterway remain elevated likely due to rainfall runoff. The highest water levels continue to be observed at Manchester, TX, measuring more than 9 feet above normal tide levels. Water levels within the Sabine Neches region, Lake Charles, and along the western Louisiana coast continue to rise, ranging from 1.5 to 3.5 feet above normal tide predictions. Coastal Central Texas water levels are falling and are at or near normal tide levels.

Winds are strongest near the entrance to Galveston Bay with wind speeds between 25 and 35 knots and gusts of up to 40 knots being observed. Elsewhere, wind speeds generally range from 10 to 20 knots with slightly higher gusts.

Water levels in bays and associated waterways may include impacts from hydrological forces, including rainfall runoff. For additional hydrological information see the NWS Advanced Hydrologic Prediction Services or your local National Weather Service Forecast Office.

Water Level and Meteorological plots available below are updated automatically. A line denoting <u>Mean Higher High Water</u> (MHHW) is displayed to provide an approximate indication of when flooding inundation may occur.

For additional data, please see the <u>Center for Operational Oceanographic Products & Services</u> website. For more information or archived products and reports, please see the <u>Storm QuickLook</u> Homepage.

Analyst: CMF

SELECT NATIONAL HURRICANE CENTER ADVISORY INFORMATION:

Tropical Storm Harvey Advisory Number 39

NWS National Hurricane Center Miami FL AL092017 1000 PM CDT Tue Aug 29 2017

...HARVEY STILL PRODUCING HEAVY RAINS OVER FAR EAST TEXAS AND SOUTHWESTERN LOUISIANA...

SUMMARY OF 1000 PM CDT...0300 UTC...INFORMATION

LOCATION...29.0N 93.6W ABOUT 60 MI...95 KM SSW OF CAMERON LOUISIANA

ABOUT 65 MI...105 KM SSE OF PORT ARTHUR TEXAS
MAXIMUM SUSTAINED WINDS...50 MPH...85 KM/H
PRESENT MOVEMENT...NE OR 35 DEGREES AT 6 MPH...9 KM/H

MINIMUM CENTRAL PRESSURE...994 MB...29.36 INCHES

WATCHES AND WARNINGS

CHANGES WITH THIS ADVISORY:

The Tropical Storm Warning along the coast of Louisiana has been extended eastward to Grand Isle.

The Tropical Storm Warning along the coast of Texas has been discontinued to the south of Freeport.

SUMMARY OF WATCHES AND WARNINGS IN EFFECT:

A Storm Surge Warning is in effect for...

* Holly Beach to Morgan City

A Storm Surge Watch is in effect for...

* Port Bolivar to west of Holly Beach

A Tropical Storm Warning is in effect for...

* North of Freeport Texas to Grand Isle Louisiana

Catastrophic and life-threatening flooding continues in southeastern Texas and portions of southwestern Louisiana. Please see warnings and other products issued by your local National Weather Service office for additional information on this life-threatening situation.

A Storm Surge Warning means there is a danger of life-threatening inundation, from rising water moving inland from the coastline, during the next 12 to 24 hours in the indicated locations. For a depiction of areas at risk, please see the National Weather Service Storm Surge Watch/Warning Graphic, available at hurricanes.gov. This is a life-threatening situation. Persons located within these areas should take all necessary actions to protect life and property from rising water and the potential for other dangerous conditions. Promptly follow evacuation and other instructions from local officials.

For storm information specific to your area, including possible inland watches and warnings, please monitor products issued by your local National Weather Service forecast office.

DISCUSSION AND 48-HOUR OUTLOOK

At 1000 PM CDT (0300 UTC), the center of Tropical Storm Harvey was located near latitude 29.0 North, longitude 93.6 West. Harvey is moving toward the northeast near 6 mph (9 km/h). A north-northeastward motion is expected later tonight and this general motion should continue through Wednesday night. On the forecast track, the center of Harvey is expected to move inland over the northwestern Gulf Coast within the tropical storm warning area early Wednesday.

Maximum sustained winds are near 50 mph (85 km/h) with higher gusts. No significant change in strength is anticipated before the center crosses the coast, but gradual weakening should begin thereafter.

Tropical-storm-force winds extend outward up to 160 miles (260 km) from the center.

The estimated minimum central pressure is 994 mb (29.36 inches).

HAZARDS AFFECTING LAND

RAINFALL: Harvey is expected to produce additional rainfall accumulations of 6 to 12 inches to the north and east of Houston from far east Texas into southwestern Louisiana. Isolated storm totals will reach 50 inches over the upper Texas coast, including the Houston/Galveston metropolitan area. These rains are currently producing catastrophic and life-threatening flooding over large portions of southeastern Texas and southwestern Louisiana. DO NOT ATTEMPT TO TRAVEL IN THE AFFECTED AREA IF YOU ARE IN A SAFE PLACE. DO NOT DRIVE INTO FLOODED ROADWAYS. Please see warnings and products issued by your local National Weather Service office for additional information on this life-threatening situation.

Elsewhere, Harvey is expected to produce total rainfall amounts of 5 to 10 inches across portions of southern Louisiana into coastal Mississippi and Alabama. Rainfall associated with Harvey will spread north by mid to late week, with rainfall amounts of 4 to 8 inches spreading into portions of Arkansas and the Tennessee Valley.

A preliminary report from a rain gauge has broken the Texas tropical cyclone rainfall record. The Cedar Bayou gauge, east of Highlands, Texas, has reported 51.88 inches of rain as of 3 PM CDT. This total is higher than the previous record of 48 inches set during tropical cyclone Amelia of 1978 at Medina, Texas.

A list of rainfall observations compiled by the NOAA Weather Prediction Center can be found at: www.wpc.ncep.noaa.gov/discussions/nfdscc1.html

STORM SURGE: The combination of a dangerous storm surge and the tide will cause normally dry areas near the coast to be flooded by rising waters moving inland from the shoreline. The water is expected to reach the following heights above ground if the peak surge occurs at the time of high tide...

Holly Beach to Morgan City...2 to 4 ft San Luis Pass to west of Holly Beach including Galveston Bay...1 to 3 ft Morgan City to Grand Isle...1 to 2 ft

The deepest water will occur along the immediate coast near the area of onshore winds. Surge-related flooding depends on the relative timing of the surge and the tidal cycle, and can vary greatly over short distances. For information specific to your area, please see products issued by your local National Weather Service forecast office.

WIND: Tropical storm conditions are occurring over portions of the warning area along the coast and are likely to persist through Wednesday.

SURF: Swells generated by Harvey are still affecting the coasts of Texas and Louisiana. These swells are likely to cause life-threatening surf and rip current conditions. Please consult products from your local weather office.

TORNADOES: A few tornadoes are possible through Wednesday across parts of Louisiana, Mississippi, southern Alabama, and southeast Arkansas.

NEXT ADVISORY

Next intermediate advisory at 100 AM CDT. Next complete advisory at 400 AM CDT.

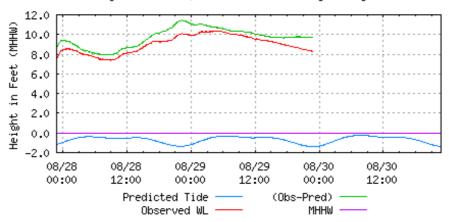
Forecaster Brown

For the purpose of timely release, data contained within this QuickLook have undergone a "limited" NOS Quality Assurance/Control; however, the data have not yet undergone final verification. All data subject to NOS verification.

Jump to: Manchester - Water Level, Manchester - Winds, Manchester - Barometric, Eagle Point - Water Level, Eagle Point - Winds, Galveston Bay Entrance, North Jetty - Water Level, Galveston Bay Entrance, North Jetty - Winds, Rollover Pass - Water Level, Rollover Pass - Winds, Rainbow Bridge - Water Level, Texas Point, Sabine Pass - Water Level, Texas Point, Sabine Pass - Winds, Calcasieu Pass - Water Level, Calcasieu Pass - Winds, Lake Charles - Water Level, Lake Charles - Barometric, Freshwater Canal Locks - Water Level, Freshwater Canal Locks - Winds, Freshwater Canal Locks - Barometric, Eugene Island, North of , Gulf of Mexico - Water Level, Eugene Island, North of , Gulf of Mexico - Winds, Eugene Island, North of , Gulf of Mexico - Barometric, Grand Isle - Water Level, Grand Isle - Winds, Grand Isle - Barometric, Sargent - Water Level, Sargent - Winds, Matagorda City - Water Level, Matagorda City - Water Level, Freeport - Water Level, Freeport - Water Level, Freeport - Winds

NOAA/NOS/CO-OPS 8770777 Manchester, TX

Preliminary Water Level, relative to Mean Higher High Water(MHHW)

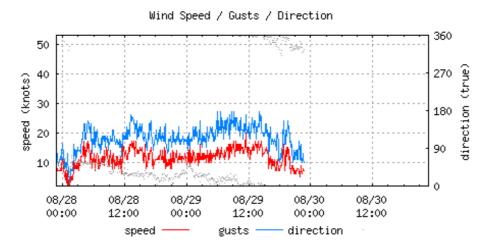


Last Observed Sample: 08/29/2017 22:42 (CDT). Data relative to MHHW

Observed: 8.28 ft. Predicted: -1.39 ft. Residual: 9.67 ft.

Historical Maximum Water Level: n/a Next High Tide: 08/30/2017 07:45 (CDT), -0.25 ft.

NOAA/NOS/CO-OPS 8770777 Manchester, TX



Last Observed Sample: 08/29/2017 22:42 (CDT) Wind Speed: 7 knots Gusts: 10 knots Direction: 325° T

NOAA/NOS/CO-OPS 8770777 Manchester, TX

Barometric Pressure 1012 1010 Pressure (mb) 1008 1006 1004 1002 1000 998 08/28 08/28 08/29 08/29 08/30 08/30 00:00 12:00 00:00 12:00 00:00 12:00 barometric pressure

Last Observed Sample: 08/29/2017 22:42 (CDT)

Barometric Pressure: 1005.9 mb

NOAA/NOS/CO-OPS 8771013 Eagle Point, TX

Preliminary Water Level, relative to Mean Higher High Water(MHHW) 4.5 Height in Feet (MHHW) 4.0 3.5 3.0 2.5 2.0 1.5 0.5 -0.5 -1.0 08/28 08/28 08/29 08/29 08/30 08/30 00:00 12:00 12:00 12:00 00:00 00:00 Predicted Tide (Obs-Pred) Observed WL MHHW

Last Observed Sample: 08/29/2017 22:42 (CDT). Data relative to MHHW Observed: 1.39 ft. Predicted: -0.61 ft. Residual: 2.00 ft. Historical Maximum Water Level: Sep 13 2008, 10.76 ft. Next High Tide: 08/30/2017 07:43 (CDT), 0.18 ft.

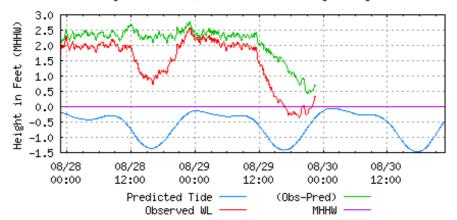
NOAA/NOS/CO-OPS 8771013 Eagle Point, TX

Wind Speed / Gusts / Direction 360 50 270 direction (true) 40 speed (knots) 30 180 20 90 10 08/28 08/28 08/29 08/29 08/30 08/30 00:00 12:00 00:00 12:00 00:00 12:00 speed : gusts direction

Last Observed Sample: 08/29/2017 22:42 (CDT) Wind Speed: 16 knots Gusts: 24 knots Direction: 344° T

NOAA/NOS/CO-OPS 8771341 Galveston Bay Entrance, North Jetty, TX

Preliminary Water Level, relative to Mean Higher High Water(MHHW)



Last Observed Sample: 08/29/2017 22:42 (CDT). Data relative to MHHW Observed: 0.34 ft. Predicted: -0.33 ft. Residual: 0.67 ft. Historical Maximum Water Level: Jul 15 2003, 4.08 ft. Next High Tide: 08/30/2017 01:35 (CDT), -0.06 ft.

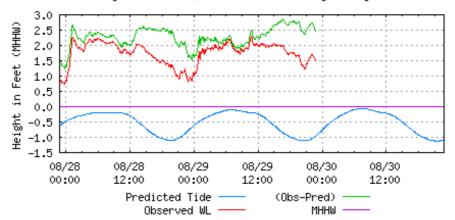
NOAA/NOS/CO-OPS 8771341 Galveston Bay Entrance, North Jetty, TX

Wind Speed / Gusts / Direction 360 50 direction (true) 40 270 speed (knots) 30 180 20 90 10 08/28 08/28 08/29 08/29 08/30 08/30 00:00 12:00 00:00 12:00 00:00 12:00 speed · gusts direction

Last Observed Sample: 08/29/2017 22:42 (CDT) Wind Speed: 25 knots Gusts: 33 knots Direction: 326° T

NOAA/NOS/CO-OPS 8770971 Rollover Pass, TX

Preliminary Water Level, relative to Mean Higher High Water(MHHW)

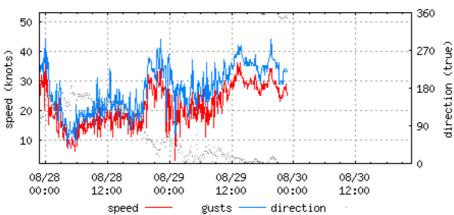


Last Observed Sample: 08/29/2017 22:42 (CDT). Data relative to MHHW Observed: 1.51 ft. Predicted: -0.97 ft. Residual: 2.48 ft.

Historical Maximum Water Level: n/a Next High Tide: 08/30/2017 07:31 (CDT), -0.06 ft.

NOAA/NOS/CO-OPS 8770971 Rollover Pass, TX

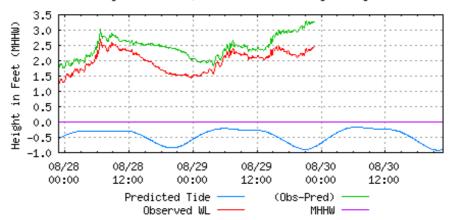
Wind Speed / Gusts / Direction



Last Observed Sample: 08/29/2017 22:42 (CDT) Wind Speed: 25 knots Gusts: 33 knots Direction: 348° T

NOAA/NOS/CO-OPS 8770520 Rainbow Bridge, TX

Preliminary Water Level, relative to Mean Higher High Water(MHHW)

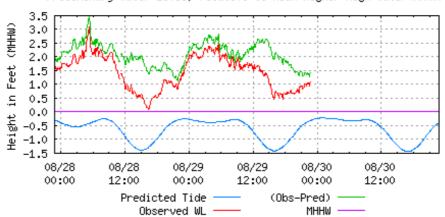


Last Observed Sample: 08/29/2017 22:48 (CDT). Data relative to MHHW Observed: 2.48 ft. Predicted: -0.81 ft. Residual: 3.29 ft.

Historical Maximum Water Level: n/a Next High Tide: 08/30/2017 06:39 (CDT), -0.17 ft.

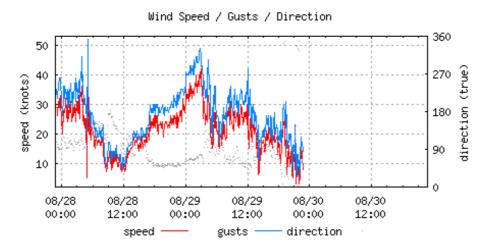
NOAA/NOS/CO-OPS 8770822 Texas Point, Sabine Pass, TX

Preliminary Water Level, relative to Mean Higher High Water(MHHW)



Last Observed Sample: 08/29/2017 22:48 (CDT). Data relative to MHHW Observed: 1.20 ft. Predicted: -0.31 ft. Residual: 1.51 ft. Historical Maximum Water Level: Mar 20 2012, 1.91 ft. Next High Tide: 08/30/2017 00:57 (CDT), -0.22 ft.

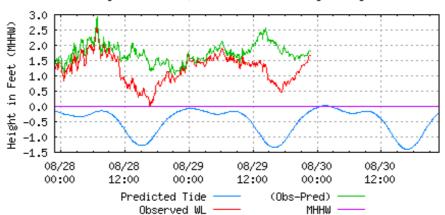
NOAA/NOS/CO-OPS 8770822 Texas Point, Sabine Pass, TX



Last Observed Sample: 08/29/2017 22:48 (CDT) Wind Speed: 7 knots Gusts: 8 knots Direction: 33° T

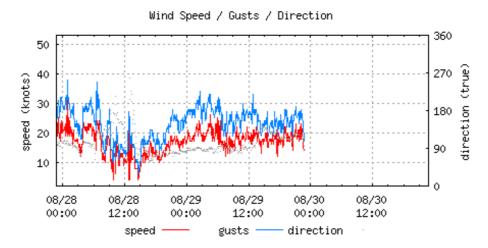
NOAA/NOS/CO-OPS 8768094 Calcasieu Pass, LA

Preliminary Water Level, relative to Mean Higher High Water(MHHW)



Last Observed Sample: 08/29/2017 22:42 (CDT). Data relative to MHHW Observed: 1.66 ft. Predicted: -0.15 ft. Residual: 1.81 ft. Historical Maximum Water Level: Sep 13 2008, 9.96 ft. Next High Tide: 08/30/2017 01:28 (CDT), 0.02 ft.

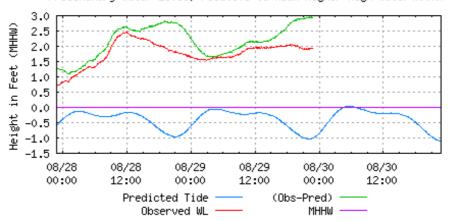
NOAA/NOS/CO-OPS 8768094 Calcasieu Pass, LA



Last Observed Sample: 08/29/2017 22:42 (CDT) Wind Speed: 14 knots Gusts: 17 knots Direction: 94° T

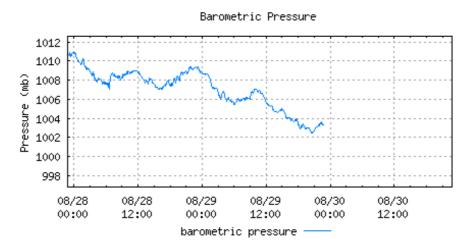
NOAA/NOS/CO-OPS 8767816 Lake Charles, LA

Preliminary Water Level, relative to Mean Higher High Water(MHHW)



Last Observed Sample: 08/29/2017 22:48 (CDT). Data relative to MHHW Observed: 1.93 ft. Predicted: -1.00 ft. Residual: 2.93 ft. Historical Maximum Water Level: Oct 16 2006, 2.19 ft. Next High Tide: 08/30/2017 05:33 (CDT), 0.04 ft.

NOAA/NOS/CO-OPS 8767816 Lake Charles, LA

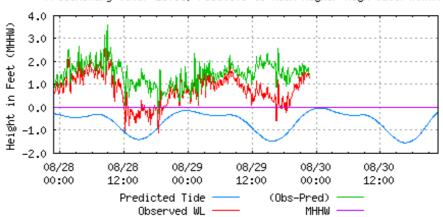


Last Observed Sample: 08/29/2017 22:48 (CDT)

Barometric Pressure: 1003.2 mb

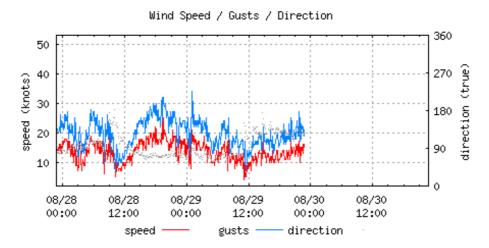
NOAA/NOS/CO-OPS 8766072 Freshwater Canal Locks, LA

Preliminary Water Level, relative to Mean Higher High Water(MHHW)



Last Observed Sample: 08/29/2017 22:48 (CDT). Data relative to MHHW Observed: 1.25 ft. Predicted: -0.14 ft. Residual: 1.39 ft. Historical Maximum Water Level: Sep 12 2008, 7.98 ft. Next High Tide: 08/30/2017 00:42 (CDT), -0.03 ft.

NOAA/NOS/CO-OPS 8766072 Freshwater Canal Locks, LA



Last Observed Sample: 08/29/2017 22:48 (CDT) Wind Speed: 15 knots Gusts: 21 knots Direction: 130° T

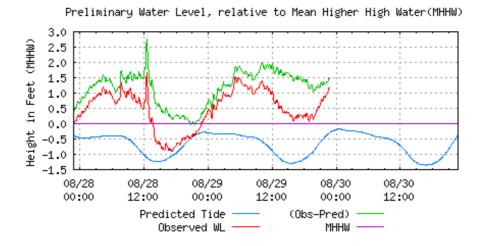
NOAA/NOS/CO-OPS 8766072 Freshwater Canal Locks, LA

Barometric Pressure 1012 1010 Pressure (mb) 1008 1006 1004 1002 1000 998 08/28 08/28 08/29 08/29 08/30 08/30 00:00 12:00 00:00 12:00 00:00 12:00 barometric pressure

Last Observed Sample: 08/29/2017 22:48 (CDT)

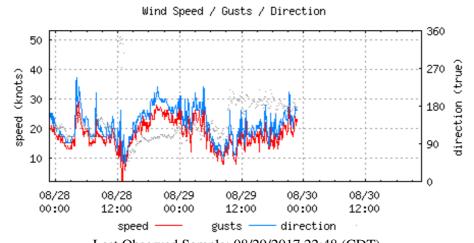
Barometric Pressure: 1003.0 mb

NOAA/NOS/CO-OPS 8764314 Eugene Island, North of , Gulf of Mexico, LA



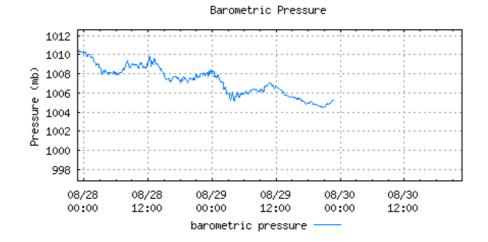
Last Observed Sample: 08/29/2017 22:48 (CDT). Data relative to MHHW Observed: 1.22 ft. Predicted: -0.30 ft. Residual: 1.52 ft. Historical Maximum Water Level: Oct 25 2015, 2.74 ft. Next High Tide: 08/30/2017 00:31 (CDT), -0.18 ft.

NOAA/NOS/CO-OPS 8764314 Eugene Island, North of , Gulf of Mexico, LA



Last Observed Sample: 08/29/2017 22:48 (CDT) Wind Speed: 24 knots Gusts: 26 knots Direction: 179° T

NOAA/NOS/CO-OPS 8764314 Eugene Island, North of , Gulf of Mexico, LA

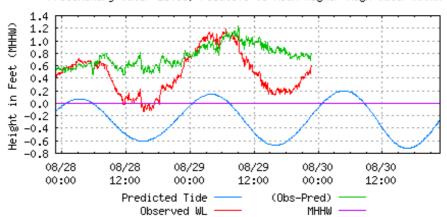


Last Observed Sample: 08/29/2017 22:48 (CDT)

Barometric Pressure: 1005.2 mb

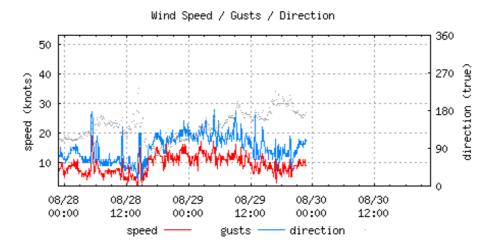
NOAA/NOS/CO-OPS 8761724 Grand Isle, LA

Preliminary Water Level, relative to Mean Higher High Water(MHHW)



Last Observed Sample: 08/29/2017 22:48 (CDT). Data relative to MHHW Observed: 0.59 ft. Predicted: -0.19 ft. Residual: 0.78 ft. Historical Maximum Water Level: Aug 29 2012, 4.45 ft. Next High Tide: 08/30/2017 04:50 (CDT), 0.20 ft.

NOAA/NOS/CO-OPS 8761724 Grand Isle, LA



Last Observed Sample: 08/29/2017 22:48 (CDT) Wind Speed: 10 knots Gusts: 19 knots Direction: 171° T

NOAA/NOS/CO-OPS 8761724 Grand Isle, LA

Barometric Pressure 1012 1010 Pressure (mb) 1008 1006 1004 1002 1000 998 08/28 08/28 08/29 08/29 08/30 08/30 00:00 12:00 00:00 12:00 00:00 12:00

barometric pressure ——
Last Observed Sample: 08/29/2017 22:48 (CDT)
Barometric Pressure: 1008.4 mb

NOAA/NOS/CO-OPS 8772985 Sargent, TX

Preliminary Water Level, relative to Mean Higher High Water(MHHW) 3.5 Height in Feet (MHHW) 3.0 2.5 2.0 1.5 1.0 0.5 0.0 -0.5 08/28 08/28 08/29 08/29 08/30 08/30 00:00 12:00 12:00 12:00 00:00 00:00

Last Observed Sample: 08/29/2017 22:42 (CDT). Data relative to MHHW Observed: 2.66 ft. Predicted: -0.15 ft. Residual: 2.81 ft. Historical Maximum Water Level: n/a

(Obs-Pred)

MHHW

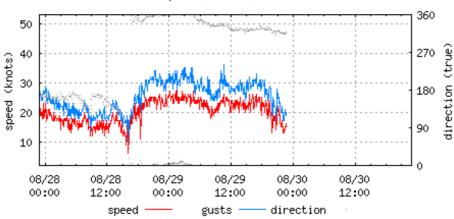
Predicted Tide

Observed WL

Next High Tide: 08/30/2017 05:20 (CDT), 0.05 ft.

NOAA/NOS/CO-OPS 8772985 Sargent, TX

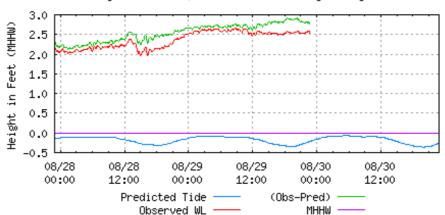
Wind Speed / Gusts / Direction



Last Observed Sample: 08/29/2017 22:42 (CDT) Wind Speed: 15 knots Gusts: 19 knots Direction: 316° T

NOAA/NOS/CO-OPS 8773146 Matagorda City, TX

Preliminary Water Level, relative to Mean Higher High Water(MHHW)

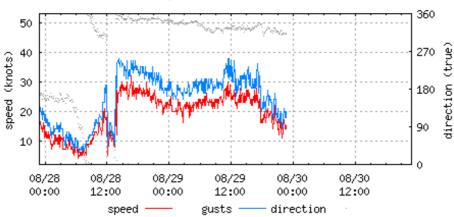


Last Observed Sample: 08/29/2017 22:42 (CDT). Data relative to MHHW Observed: 2.55 ft. Predicted: -0.21 ft. Residual: 2.76 ft.

Historical Maximum Water Level: n/a Next High Tide: 08/30/2017 05:29 (CDT), -0.07 ft.

NOAA/NOS/CO-OPS 8773146 Matagorda City, TX

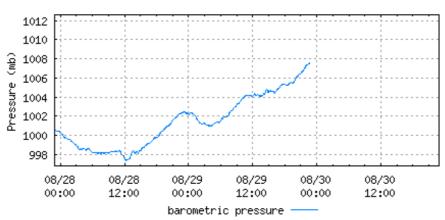
Wind Speed / Gusts / Direction



Last Observed Sample: 08/29/2017 22:42 (CDT) Wind Speed: 14 knots Gusts: 18 knots Direction: 312° T

NOAA/NOS/CO-OPS 8773146 Matagorda City, TX

Barometric Pressure

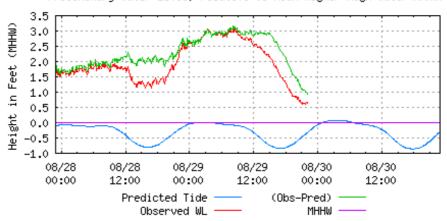


Last Observed Sample: 08/29/2017 22:42 (CDT)

Barometric Pressure: 1007.6 mb

NOAA/NOS/CO-OPS 8771972 San Luis Pass, TX

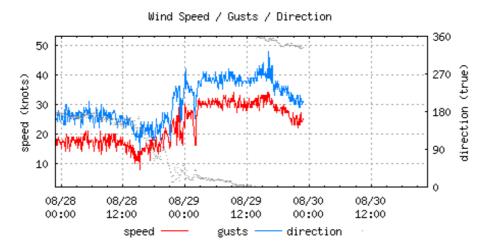
Preliminary Water Level, relative to Mean Higher High Water(MHHW)



Last Observed Sample: 08/29/2017 22:48 (CDT). Data relative to MHHW Observed: 0.62 ft. Predicted: -0.32 ft. Residual: 0.94 ft.

Historical Maximum Water Level: n/a Next High Tide: 08/30/2017 03:51 (CDT), 0.07 ft.

NOAA/NOS/CO-OPS 8771972 San Luis Pass, TX



Last Observed Sample: 08/29/2017 22:48 (CDT) Wind Speed: 25 knots Gusts: 31 knots Direction: 333° T

NOAA/NOS/CO-OPS 8772447 Freeport, TX

Preliminary Water Level, relative to Mean Higher High Water(MHHW)

2.5

2.0

1.5

1.0

2.5

2.0

1.0

2.5

1.0

1.0

1.0

08/29

00:00

Predicted Tide

Observed WL

-1.5

08/28

00:00

08/28

12:00

Last Observed Sample: 08/29/2017 22:42 (CDT). Data relative to MHHW Observed: 0.14 ft. Predicted: -0.26 ft. Residual: 0.40 ft. Historical Maximum Water Level: Sep 12 2008, 5.58 ft. Next High Tide: 08/30/2017 01:17 (CDT), -0.03 ft.

08/29

12:00

08/30

12:00

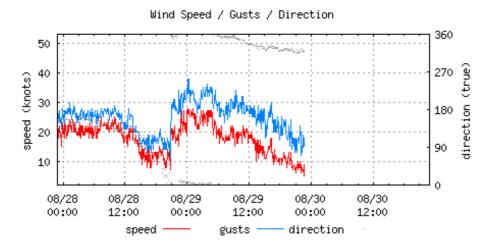
08/30

00:00

MHHW

(Obs-Pred)

NOAA/NOS/CO-OPS 8772447 Freeport, TX



Last Observed Sample: 08/29/2017 22:42 (CDT) Wind Speed: 9 knots Gusts: 15 knots Direction: 316° T

Latest Water Level Observations on MHHW

Station ID	Station Name	Date/Time	Observed Water Level	Predicted Tide	Residual Water Level	24 Hour Maximum Storm Tide
8770777	Manchester, TX	08/29/2017 22:42 (CDT)	8.28 ft	-1.39 ft	9.67 ft	10.36 ft
8771013	Eagle Point, TX	08/29/2017 22:42 (CDT)	1.39 ft	-0.61 ft	2.00 ft	3.67 ft
8771341	Galveston Bay Entrance, North Jetty, TX	08/29/2017 22:42 (CDT)	0.34 ft	-0.33 ft	0.67 ft	2.58 ft
8770971	Rollover Pass, TX	08/29/2017 22:42 (CDT)	1.51 ft	-0.97 ft	2.48 ft	2.30 ft
8770520	Rainbow Bridge, TX	08/29/2017 22:48 (CDT)	2.48 ft	-0.81 ft	3.29 ft	2.48 ft
8770822	Texas Point, Sabine Pass, TX	08/29/2017 22:48 (CDT)	1.20 ft	-0.31 ft	1.51 ft	2.46 ft
8768094	Calcasieu Pass, LA	08/29/2017 22:42 (CDT)	1.66 ft	-0.15 ft	1.81 ft	1.89 ft
8767816	Lake Charles, LA	08/29/2017 22:48 (CDT)	1.93 ft	-1.00 ft	2.93 ft	2.06 ft
8766072	Freshwater Canal Locks, LA	08/29/2017 22:48 (CDT)	1.25 ft	-0.14 ft	1.39 ft	2.17 ft
8764314	Eugene Island, North of , Gulf of Mexico, LA	08/29/2017 22:48 (CDT)	1.22 ft	-0.30 ft	1.52 ft	1.52 ft
8761724	Grand Isle, LA	08/29/2017 22:48 (CDT)	0.59 ft	-0.19 ft	0.78 ft	1.19 ft
8772985	Sargent, TX	08/29/2017 22:42 (CDT)	2.66 ft	-0.15 ft	2.81 ft	2.97 ft
8773146	Matagorda City, TX	08/29/2017 22:42 (CDT)	2.55 ft	-0.21 ft	2.76 ft	2.67 ft
8771972	San Luis Pass, TX	08/29/2017 22:48 (CDT)	0.62 ft	-0.32 ft	0.94 ft	3.08 ft
8772447	Freeport, TX	08/29/2017 22:42 (CDT)	0.14 ft	-0.26 ft	0.40 ft	1.43 ft

Center for Operational Oceanographic Products & Services (CO-OPS) | National Ocean Service (NOS) National Oceanic and Atmospheric Administration | U.S. Department of Commerce